

**UNITED STATES DEPARTMENT OF COMMERCE****Patent and Trademark Office**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/380,630 09/20/99 HAYAKAWA

H 2651-0028-2X

EXAMINER

IM22/0814

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ART UNIT

PAPER NUMBER

1762

DATE MAILED:

08/14/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/380,630

Applicant(s)

Hayakawa et al

Examiner

M.L. Padgett

Group Art Unit

1762

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to communication(s) filed on 5/22/01

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-7 & 9-25 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-7 & 9-25 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☒ The proposed drawing correction, filed on 5/22/01 is ☒ approved ☐ disapproved by the Examiner.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 7
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

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1. Claims 1-25 are objected to or rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, line 10 is vague and indefinite, because "the laser beam" can refer to either "a laser beam of a first laser power" or "....of a second laser power", because applicant has failed to distinguish the initial part of the limitation or use the whole phrase. Use of phrasing, such as -- a first laser beam of--, etc. would correct this problem, and obviate the need for repetitive use of cumbersome phrases.

Claim 9, etc. depend from 1, and it is unclear how one denatures a metal, but changing the nature of the deposit will be considered to suffice.

Claim 2 is objected to as verbose, and as having deleted essentially correct articles. Wouldn't -- wherein the first laser power is greater per unit area than the second laser power -- say what applicants intend without the repetition?

In claim 5, line 2, "materials" has now been made plural, hence in line 4 and beyond "said material" is objected to as lacking proper antecedent basis, due to inconsistent terminology.

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Both claims 1 and 5, properly introduce “ a surface of said material to be marked”. As claim 10, has been amended in line 2 to read “a surface ...”, it is unclear how these surfaces are intended to differ, since both the claimed bodies were now clearly defined to be options for the material to marked. See claim 13 for an analogous problem.

In claims 15 and 18-22, abbreviations need to be defined (i.e. written out) in the claims the first time they are used. The terms “QR Code, Data Code, Veri Code” were found used on p. 17 and 18 of the specification, but no definitions or meanings were found therein. The examiner has NO clue as to what is meant by QR Code or Veri Code, so they can not be further examined. Data Code will be given its literal meaning for purposes of examination, unless some other supported definition is provided by prior art.

2. The disclosure is objected to because of the following informalities: There are undefined terms as discussed above, in the specification.

Appropriate correction is required.

3. The examiner has reviewed the proposed drawing correction and has no problems with them.

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4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

(5) Claims 1-3 and 9-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cook, in view of Tadah ('462) or Addiego et al.

In Cook, note that both irradiating through the substrate (material to be marked) as in Fig. 5, described in col. 6, lines 29-52, and irradiating through the support for the transfer (marking) material as in Fig. 2, are taught to be useful for patterning, such as for metal circuit or repair of photo masks (on glass substrates), hence reading on the claimed patterns, as circuits, etc., can definitely be considered diagrams. Tests show use of a steel alloy foil for transfer and a gap of approximately $0.025 \text{ mm} = 25 \mu\text{m}$, which is squarely within the range claimed by applicant, hence previous omission of claim 7 from the claims list clearly inadvertent. Col 5, lists other useful metals and alloys, as well as uses. The properties of the transferred material are inherently modified during the process. While the claimed codes or bar codes are not discussed in Cook, they are just a pattern variation, dependant on desired end use, and any pattern design would have been obvious as a design choice dependant on labeling/identification and use requirements.

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Cook does not teach a second use of laser irradiation, nor the specific steels or any thicknesses of deposit. As the thickness^{es}₁ of the foils for this process are generally quite thin, so are the films produced. Additionally, when irradiating through the substrate, the resultant deposit limits film thickness as it progressively blocks the light, hence the thickness as claimed would have been obvious or expected by one of ordinary skill from the limits induced by source material or attenuation. As Cook's process is applicable generally to metals, and particularly mentions steel alloys, use of any common steel alloys would have been obvious, depending on properties desired in the final end product, because all would have been expected to be effectively treated.

Applicants appear to have changed claim 1 to necessarily require the second laser beam to remove or some how change material deposited by the first (i.e. denature?). Tatah ('462) as previously applied and ^{repeated} below ~~remains applicable~~.

Alternately, it would have been obvious to one of ordinary skill to make repair on patterns, such as circuit boards, using laser for laser abatable deposits, which anything deposited by Cooks technique is, because such a procedure is already shown to be effective. Note that direct removal without intervening material would have been expected to need less power to cause ablation. Addiego et al supplies further support and motivation for these arguments (Abstract, summary), as it shows that need for repair and use of laser removal for such repair are old and well known.

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Tatah (462) also produces laser ablation film patterns, including discussing repair processes (Fig. 5-6 and col. 6, lines 7-35), but the Tatah (462) configuration is analogous to Cook's fig. 2. After deposition, Tatah teaches enhanced binding by repeated reflection of laser light to heat the substrate deposited on (abstract, figure 3; col. 4, lines 10-56), hence it would have been obvious to use the post-treatment process of Tatah (462) in Cook, for the benefits taught and because equivalence of deposition processes is taught in Cook. Lower power would have been expected, as vaporization is not desired in the post-treatment.

6. Tatah ('336) has bonding teachings equivalent to the (462) reference, and Landsman has multiple laser treatment, transfer and post-treatment that are equivalently applicable, in the above rejection. Robertson shows that laser marking to form bar code is a known design.

7. Claims 5-6 and 9-10 remain rejected under 35 U.S.C. 102(b) as being clearly anticipated by Hase et al.

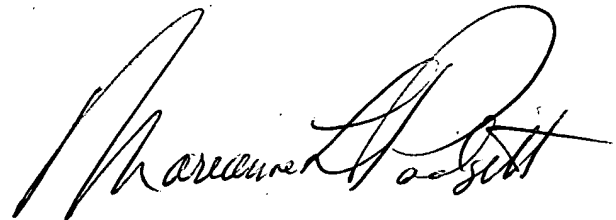
In Hase et al, see the abstract; fig. 1; col. 2, line 23-68; col 3, line 3-16; and Ex. 1. Substrate 3 in Hase transmits radiation as claimed and vaporizes target material that reacts with gas in the gap, as claimed. ^{Heating} of the substrate is irrelevant.

8. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cook^{as} discussed above, and in view of Landsman optionally considering Braudy.

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Cook was discussed above, and as noted teaches Fig. 2 and 5 configurations where as Landsman and Braudy only use fig. 2 types. In Landsman, see abstract, figures and col. 2-4. In Braudy, see abstract, figures 1-3; col. 2, line 1-52; col. 3 and table. Landsman shows that multiple lasers (transfer, the treating) are appropriate for dye and pigment type materials, while Braudy supplies many possible pigments, hence it would have been obvious to one of ordinary skill in the art that such dyes and pigments would have been both useful and effectively treated in processes of Cook due to the overlapping mechanisms employed.

9. Other art of interest, included Drew et al, Frausto et al and Ronn et al with configurations and materials of interest, and ^{the} Seiji et al Japanese reference.
10. Applicant's arguments filed May 22, 2001 and discussed above have been fully considered but they are not persuasive.
11. Any inquiry concerning this communication should be directed to M.L. Padgett at telephone number (703) 308-2336 on M-F from about 8 am to 4:30 pm, and FAX # (703) 305-5408 (official) and 305-6078 (unofficial)..



MARIANNE PADGETT
PRIMARY EXAMINER
GROUP 1700

Marianne Padgett /nh

August 9, 2001